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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,369

08/04/2005

Mark R. Hagan

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05/04/2009

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EXAMINER

HENDRICKSON, STUART L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

05/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,369	Applicant(s) HAGAN ET AL.	
	Examiner Stuart Hendrickson	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/27/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 16 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, 16, 21 are rejected under 35 U.S.C. 103(a) as obvious over Liu et al. 7195742.

Liu teaches in col. 1-3 oxidizing CO in a reformat for use in a fuel cell and controlling the oxygen amount infed. The ability to calculate the oxygen needed is implied in the teachings of optimization, thus no differences are seen, Even though the verbiage is not identical. Claim 2 is axiomatic- one must be able to tell the capabilities of the machines being used to control the process. The reference controls oxygen flow and thus the claimed scheme is obvious since it accomplishes this result in essentially the same way.

Concerning claim 6, Liu does not specify the anode. However, this is an obvious expedient to provide hydrogen where it is needed/desired in a fuel cell system. The other claims are obvious for the reasons above, should a difference actually exist in the manner the calculations are made, in order to optimize the reaction.

Claims 1-7, 16, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahlich article.

The reference teaches selective CO oxidation of a reformat in conjunction with a fuel cell. Page 44 teaches plural inlets and how to calculate the oxygen demand. Using the present calculation mode, if different, in the process of Kahlich is an obvious expedient to remove the undesired CO. The reference controls oxygen flow and thus the claimed scheme is obvious since it accomplishes this result in essentially the same way.

As for claim 6, Kahlich teaches a fuel cell system, but does not specify the anode. However, this is an obvious expedient to provide hydrogen where it is needed/desired in a fuel cell system.

Claims 1-7, 16, 21 are rejected under 35 U.S.C. 103(a) as obvious over Heil et al. 6287529.

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Heil teaches in col. 3 and col. 7 varying the oxygen supply at several places in a CO oxidation unit connected to a reformer. The ability to calculate the oxygen needed is implied in the teachings of optimization, thus no differences are seen, even though the verbiage is not identical.

The reference controls oxygen flow and thus the claimed scheme is obvious since it accomplishes this result in essentially the same way.

The other claims are obvious for the reasons above, should a difference actually exist in the manner the calculations are made, in order to optimize the reaction. Claim 2 is axiomatic- one must be able to tell the capabilities of the machines being used to control the process.

As for claim 6, Heil teaches a fuel cell system, but does not specify the anode. However, this is an obvious expedient to provide hydrogen where it is needed/desired in a fuel cell system.

Applicant's arguments filed 2/27/09 have been fully considered but they are not persuasive.

The arguments are to a gas flow system, rather than any actual chemical process difference. Given the teachings of the reactions to be performed, the claimed scheme is obvious to control the oxygen to the level needed. Kahlich explicitly teaches that the oxygen flow should be variable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (571) 272-1351.

/Stuart Hendrickson/
examiner Art Unit 1793